CZECH/34-59-8-6/16

AUTHOR: Drápal, Stanislav, Candidate of Technical Sciences, Engineer

TITLE: Effect of Fluctuations in the Chemical Composition on the First Graphitisation Stage of Malleable Cast Iron

PERIODICAL: Hutnické listy, 1959, 14 Nr 8, pp 680 - 688

ABSTRACT: In Czechoslovakia malleable iron is still produced predominantly by smelting in cupola furnaces. One of the basic disadvantages of smelting in cupolas is the considerable fluctuation of the chemical composition of the melts. In 1956, the maximum and minimum contents of some of the elements were as follows: 3.02/2.37% C, 1.42/0.67% Si, 0.69/0.27% Mn, 0.262/0.137% S. A good idea of the influence of carbon, silicon and of the Mn/S ratio on the kinetics of the first stage of graphitisation can be obtained by evaluating measurements of the isothermal decomposition of ledeburitic cementite and that is done in this paper. The effect of carbon, silicon and of the Mn/S ratio was investigated on eight experimental melts. The chemical compositions of these (given in Table 2) were chosen to encompass the contents of the individual elements

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determined by statistical evaluation of the chemical analyses carried out in selected malleable-iron foundries (Ref 1). The experimental melts were produced in a high-frequency furnace. After over-heating to 1 450 °C, the melt was poured into a ladle, inoculated with 0.02% Al and then used for casting 10 x 10 x 70 mm ingots. The heats A-1 to A-5 (Figures 1-5) were intended for studying the influence of carbon and silicon on the cementite decomposition; the heats B-1 to B-3 (Figures 13-15) were intended for studying the influence of the Mn/S ratio on the cementite decomposition. In Figure 6 the influence of the carbon content on the isothermal decomposition of the ledeburitic cementite is graphed. In Figure 11, the influence of silicon on the isothermal decomposition of ledeburitic cementite is graphed, whilst in Figure 16, the influence of the Mn/S ratio on the isothermal decomposition time of cementite is graphed. The effect of Al inoculation on the graphitisation is graphed in Figure 20 and that of the size of the cross-section is

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graphed in Figure 21. The results are briefly summarised thus:

1) with increasing carbon content, the isothermal decomposition time of ledeburitic cementite increases and the dependence between the percentual carbon content and the decomposition time can be expressed by the equation:

$$C(\%) = K_1' + K_2 \cdot \log t \quad .$$

With increasing carbon content the proportion of ledeburitic cementite in the structure of the cast iron increases and, under otherwise equal conditions, its particles will be coarser. The unfavourable effect of a higher carbon content on the speed of decomposition of the cementite consists in the fact that it brings about a relative drop in the speed of formation of graphite germinations;

2) silicon has the strongest influence on cementite decomposition. With increasing silicon content, the

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decomposition time decreases in accordance with the equation:

$$Si\ (\%) = M_1 - M_2 \cdot \log t \ .$$

With increasing silicon content, the speed of formation of graphite germinations and their speed of growth increase, resulting in an increase in the graphitisation speed;

3) the optimum Mn/S ratio is between 3 and 4; if the Mn or the S contents are higher, the cementite decomposition time increases and the increase will be the more pronounced the lower the temperature. A slight excess of the Mn content is less unfavourable than an excess of sulphur;

4) in addition to fluctuations in the chemical composition, the speed of the first stage of graphitisation is influenced by other production factors, for instance, the degree of over-heating of the melt, the method of inoculation, the speed of solidification of the castings, etc.

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There are 20 figures, 3 tables and 28 references, of which 5 are Czech, 2 Soviet, 2 Japanese, 1 Chinese, 2 German and 16 English.

ASSOCIATION: Státní výzkumný ústav materiálu a technologie, Praha (State Research Institute on Materials and Technology, Prague)

SUBMITTED: May 7, 1959

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Z/034/60/000/012/007/015
E073/E535

AUTHOR: Drápal, Stanislav, Engineer, Candidate of Technical Sciences

TITLE: Structural Transformations During Heat Treatment of Cast 13% Chromium Steels

PERIODICAL: Hutnické listy, 1960, No.12, pp.961-971

TEXT: Due to their higher heterogeneity, the structural changes in cast steel are likely to differ from those determined for hot worked steel. The author has concentrated his efforts in studying the structural changes under conditions of continuous cooling, as this is of primary importance from the practical point of view of heat treatment. Six experimental melts (Table 1) were prepared with carbon contents of 0.05, 0.12, 0.16, 0.22, 0.30 and 0.34%, respectively. The melts were produced in a 100 kg high frequency furnace with magnesite lining. From each of the heats an experimental block was cast from which specimens were cut for studying structural changes (Ref.6). The structural changes were studied on the basis of the changes in the magnetic properties, measuring the changes in the hardness by differential thermal analysis and by a quantitative metallographic analysis. Measurement of the

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magnetic properties was utilised for determining the A_1 and A_3 points and also for investigating austenite decomposition at high cooling speeds. The recrystallization temperatures were determined by isothermal annealing of the specimens for 15 min intervals at various temperatures followed by immersion into a tin bath, the temperature of which was maintained at 500°C. The amount of austenite formed at a given austenization temperature was determined from the difference between the magnetic properties measured at the tin bath temperature prior to and after austenization. The austenite decomposition was determined on the basis of permeability changes using an induction-type instrument of 50 cps with a field strength of 500 Oe to ensure independence of the permeability on the temperature. The hardness was measured by means of a Vickers instrument with a load of 30 kg. The differential thermal analysis was carried out by means of equipment developed for studying structural changes in the solid state (Ref.9). Specimens of 12 mm diameter, 20 mm long were used; on one face a hole of 4.5 mm diameter, 10 mm deep was drilled for fitting thermocouples. Metallographic analysis by means of the lattice method was carried out with an accuracy of $\pm$ 0.1% with a probability ϵ = 0.9. The changes in the

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hardness and the metallographic analysis were carried out using specimens of 6.5 mm diameter, 3 mm thickness. Prior to oxidation, the specimens were protected by sealing them into quartz tubes. For measuring the structural changes during high cooling speeds, specimens of 10 mm diameter, 1 mm thick, protected by an electrolytically deposited chromium coating, were used. The following were studied: structural changes during austenization; the kinetics of austenite decomposition; the structural changes during tempering. On the basis of the obtained results and their analysis the following conclusions were arrived at: In heating 13% Cr steel with a sufficiently high C content (at least 0.05%) austenite will form after exceeding the A_1 temperature. This temperature is little influenced by the C content, on the other hand the A_3 temperature decreases with increasing C content. For steels containing 0.12% and more carbon, the decomposition of carbides continues after austenization has terminated. An appreciable increase in the austenitic grain occurs at temperatures above 950°C. In this temperature range the influence

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of the holding time is also pronounced; with increasing holding time the grain size increases. During austenite decomposition in steels with 0.05% C, under conditions of continuous cooling, the formation of carbides was observed at first, which separated at the boundaries between the delta ferrite and the austenite. This differs from hitherto published experience on austenite decomposition of low carbon steels. In steels with a high carbon content, formation of proeutectic carbides was observed first at the austenitic grain boundaries. The eutectoidal reaction begins with the formation of a granular eutectoid. The further process of austenite transformation results in the formation of a lamellar eutectoid. At cooling speeds above 75°C/hour the eutectoidal reaction is not realised to the full extent; a part of the austenite remains conserved and transforms into martensite only in the range of very low temperatures. The beginning of the martensitic transformation in these cases is at a lower temperature than at greater cooling speeds during which no eutectoidal reaction takes place. In all the investigated steels only the martensitic reaction was determined in

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the lower temperature ranges. In tempering 13% Cr steels it was found that hardening occurs at about 500°C. In steels with 0.30 and 0.34% C the hardening was insignificant. On exceeding this temperature range a drop in hardness occurs for all the steels. At temperatures above 550°C this process slows down; the drop in hardness is a linear function of the logarithm of time. The linear drop in hardness obviously relates to the growth of the carbide particles. There are 21 figures, 3 tables and 17 references: 2 Soviet, 6 Czech, 5 German and 4 English.

ASSOCIATION: Státní výzkumný ústav materiálu a technologie, Praha (State Research Institute for Materials and Technology, Prague)

SUBMITTED: September 27, 1960

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Z/034/61/000/002/001/006
E073/E535

AUTHOR: Drápal, Stanislav, Engineer, Candidate of Technical Sciences

TITLE: Influence of Heat Treatment on the Mechanical Properties of 13% Chromium Steel

PERIODICAL: Hutnické listy, 1961, No.2, pp.120-128

TEXT: In the introduction the author states that the impact strength determined at room temperature does not give a correct picture of the toughness of a given material. If for a given material the temperature range of transition from the tough into the brittle state and its heat treatment are not known, it can easily happen that the test results relate to the transition region in which measured results vary greatly and may be well below the limit value pertaining to the tough state. This case does indeed occur for 13% Cr steels and, therefore, in addition to tensile tests, the authors carried out notch impact tests at various temperatures for judging the influence of the carbon content, the as-cast structure and the various methods of heat treatment. Six experimental melts were produced, the compositions of which were designed to cover the entire range of carbon contents permitted by

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the Czech Standard Specification ČSN 42 2905-07. The compositions of these experimental heats were as follows:

Table 1

Tab. I. Chemické složení pokusných taveb (v %)

Označení tavby Heat number	C	Mn	Si	P	S	Cr	Ni
1	0,08	0,18	0,32	0,021	0,024	13,27	0,12
2	0,13	0,23	0,25	0,013	0,018	13,02	0,13
3	0,16	0,27	0,26	0,022	0,020	13,20	0,11
4	0,22	0,27	0,19	0,022	0,024	13,15	0,13
5	0,30	0,25	0,23	0,020	0,027	13,12	0,12
6	0,34	0,23	0,19	0,022	0,020	13,16	0,13

The experimental heats were produced in 1000 kg HF furnace with a chromium magnesite lining. All the melts were over-heated to 1580°C and were then teemed directly from the furnace into open moulds producing ingots weighing 100 kg. The shape of the ingots was chosen from the point of view of utilizing directional solidification, Fig.1. Furthermore, an effort was made to approach as closely as possible the solidification conditions pertaining to

large castings. The influence of the carbon content on the yield point and UTS of specimens homogenization annealed for 10 hours at 1150°C and subsequently quenched from 1050°C and tempered at 750°C are plotted in Fig.3 (yield point, kg/mm^2, strength, kg/mm^2 vs. C content, %; ○A - zone with dendritic structure; ●B - centre zone with equiaxial grains). Fig.4 gives the influence of the carbon content on the elongation and contraction, all in %, for specimens with the same heat treatment as specified for Fig.3. The influence of carbon on the yield point and strength and on the elongation and contraction for specimens with the same heat treatment but without preliminary homogenization annealing are plotted in Figs. 5 and 6, the notations being the same as for Figs. 3 and 4. There is little difference in the notch impact strength values of the homogenized and non-homogenized specimens in the transient temperature region. The main factor determining the region of the temperatures of transition from the tough into the brittle state is the carbon content. The graph, Fig.13, shows a comparison of the transition curves for steels with various C content, notch impact strength kgm/cm^2 vs. temperature, °C (the numbering of the curves corresponds to the numbering of the heats in Table 1). As regards the

austenization temperature, the best mechanical properties were obtained for specimens quenched from 1050°C. At low C contents the austenization temperature has little influence on the transition range. With increasing C content, the influence of the austenization temperature increases. The influence of the carbon content, % on the yield point, kg/mm^2, and the strength, kg/mm^2, after tempering at 650 and 750°C is shown in Fig.15 and the influence of the carbon content on the elongation and contraction (all in %) after tempering at 650 and 750°C, respectively, is plotted in Fig.16. The influence of the cooling speed after tempering was also investigated; it was found that the influence of the cooling speed on the temperature of transition to brittle fracture is still insignificant for a carbon content of 0.22%. Only for 0.30% C was there a more pronounced shift of the transition temperature towards higher temperatures for a cooling speed of 50°C/hour. The notch impact strength in the tough state was higher in every case for specimens cooled after tempering at a rate of 50°C/hour than for specimens cooled at a rate of 700°C/hour. The following conclusions are arrived at:

1. The influence of homogenization annealing on the mechanical

properties, particularly the notch impact strength, did not manifest itself to any great extent for carbon contents up to 0.22% C. A certain improvement was achieved by homogenization annealing only for steels with higher C contents.
2. Under otherwise equal conditions, the strength and the yield point increase with increasing C content, whilst the elongation and contraction decrease almost linearly with increasing C content (except for higher C contents). With increasing C contents the transition between the tough and the brittle states shifts towards higher temperatures and the maximum toughness in the range pertaining to the tough state decreases.
3. There were no pronounced differences between the mechanical properties in the surface layer, characterized by the dendritic crystals, and the centre region with approximately equiaxial grains.
4. The results relating to the influence of austenization temperatures on the mechanical properties indicate that the most favourable conditions for austenizing castings, for which a high toughness has to be achieved, is the temperature range 950 to 1000°C.
5. Investigations of the tempering conditions have shown that, for

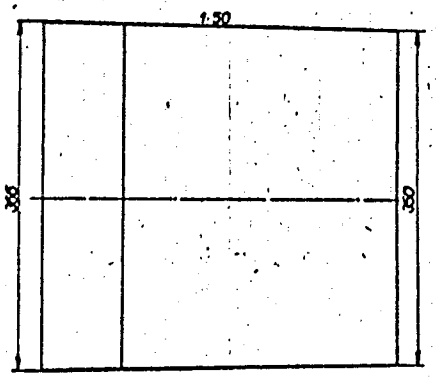
obtaining the highest strength and yield point, it is favourable to use steels containing 0.12 to 0.13% C and to temper these at an appropriately lower temperature. As a result of this, a higher toughness is achieved than for steels with higher C contents, tempered at a higher temperature. 6. Comparison of the toughness of steels cooled at differing speeds after tempering indicates that steels with 0.12 to 0.18% C can be cooled at lower speeds without bringing about a significant change in the region of transition between the tough and the brittle states. This is a favourable feature, since in the case of low cooling rates less internal stresses are likely to arise.
7. Analysis of the processes during homogenization revealed the possibility of evolving better methods of annealing castings. By means of these methods it will be possible to combine annealing for eliminating internal stress with homogenization annealing. The annealing would consist of slow heating of the castings to a temperature of about 1000°C, followed by slow cooling down to 300 to 250°C. The speed of heating and cooling would reach about 50°C/hour. In the temperature range 750 to 1000°C higher rates of heating and cooling can be applied. No advantage appears to be

gained by holding at 1000°C. There are 19 figures, 2 tables and 5 references: 1 Czech and 4 non-Czech.

ASSOCIATION: Státní výzkumný ústav materiálu a technologie Praha (State Research Institute for Materials and Technology, Prague)

SUBMITTED: October 18, 1960

Fig.1



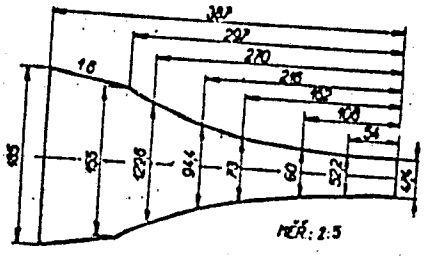


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Fig.3

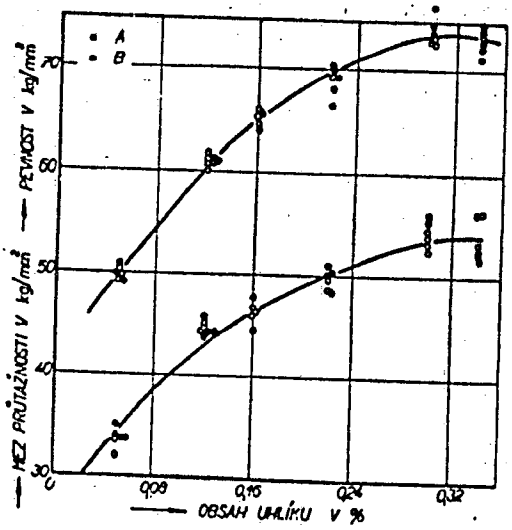

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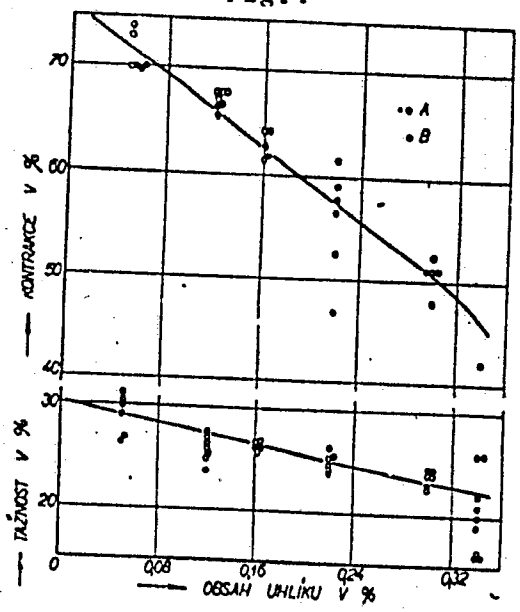
Fig.4



Influence of Heat Treatment on ....

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Fig.5

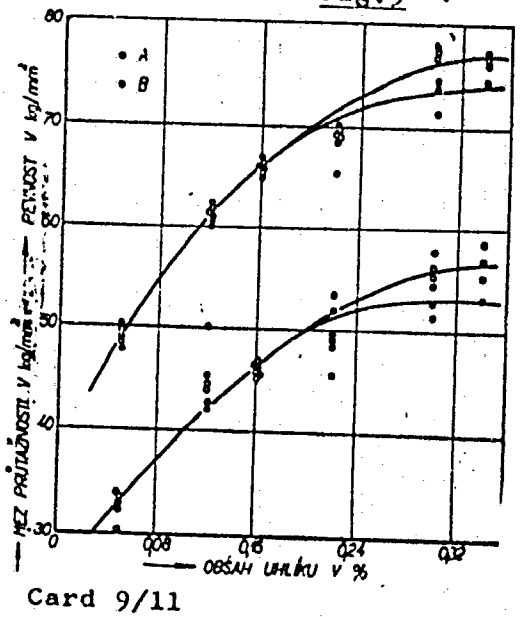

Fig.6

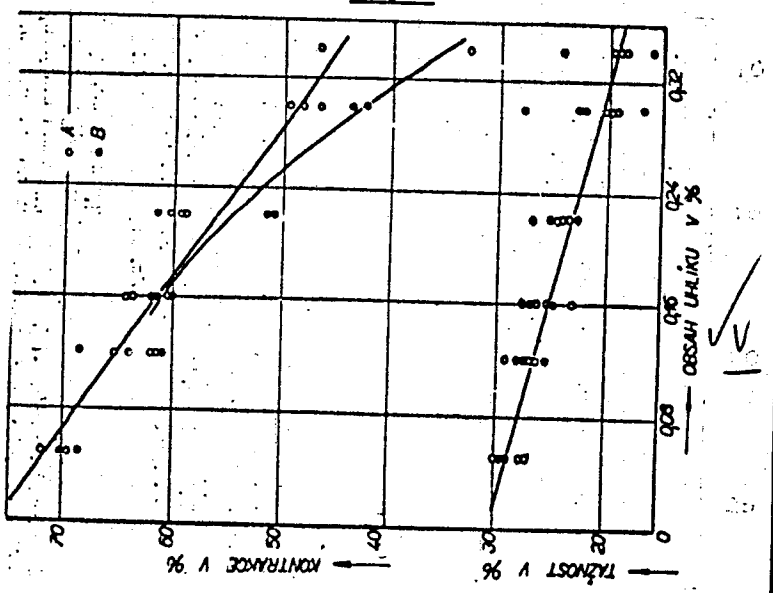

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Fig.13

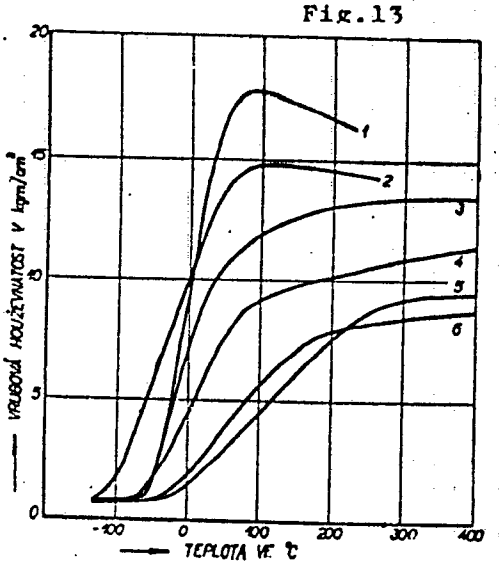
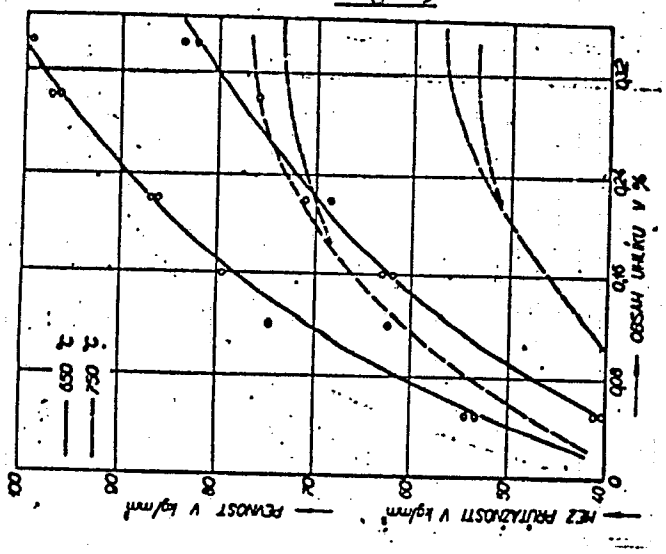


Fig.15



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Influence of Heat Treatment on ....

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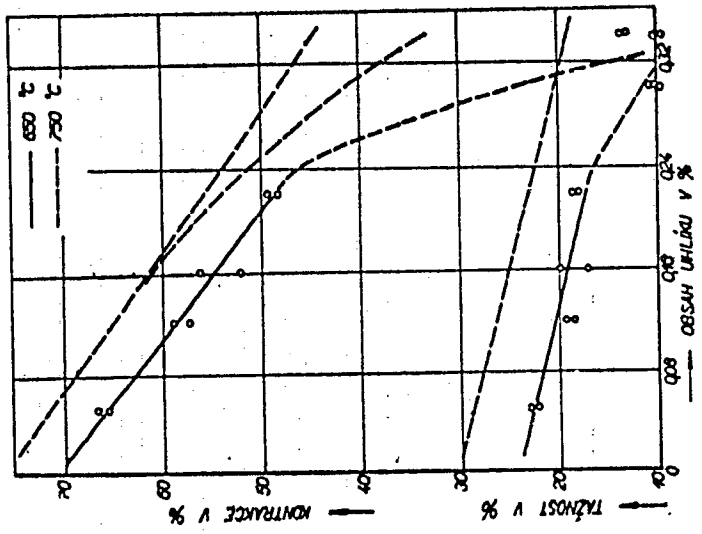
Fig.16



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E073/E335

18.1130

AUTHOR: Drápal, S.

TITLE: Study of the Heat-treatment of Cast Stainless Steels

PERIODICAL: Strojirenství, 1961, Vol. 11, No. 2, p. 153

TEXT: The author deals with the results of investigation of the structural changes produced by heat-treatment of 13% Cr steels and the influence of various factors during heat treatment which affect the mechanical properties, particularly the impact strength. The investigations were made on 6 heats with graduated carbon contents.
1960, Prague: SVÚMT Z - 60 - 838.
(Note: this is a complete translation)

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27234

18 1130

Z/032/61/011/010/006/007
E073/E535

AUTHOR: Drápal, S.

TITLE: Investigation of the heat treatment of inoculated 13% chromium steels

PERIODICAL: Strojírenství, 1961, Vol.11, No.10, p.794

TEXT: The results are given of tests with heats of inoculated 13% chromium steel for castings. It was found that both Mn and Si have an unfavourable influence on the toughness of steel and bring about an increase in the sensitivity of the material to fluctuations in the parameters during heat treatment. The addition of about 1% Ni has a favourable effect, particularly on the toughness. Addition of Mo improves the toughness in the range of low temperatures but strongly deforms the transition curve.
1961, Prague: SVÚMT Z-60-967

[Abstractor's Note: Complete translation.]

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DRAPAL, Stanislav, inz., kandidat technickych ved

Influece of heat treatment on mechanical properties of cast 13 per cent chromium steel. Hut listy 16 no.2:120-128 F '61.

1. Statni vyzkumny ustav materialu a technologie, Praha.

DRAPAL, Stanislav

Report on preparation of the international standard for malleable and nodular cast iron. Slevarenstvi 10 no.9:350-353 S '62.

Z/034/63/000/001/009/012
E073/E151

AUTHOR: Drápal, S.

TITLE: Investigation of the heat treatment of austenitic stainless steels for castings

PERIODICAL: Hutnické listy, no.1, 1963, 74

TEXT: The results are described of tests aimed at elucidating the optimum heat treatment conditions for cast austenitic steels corresponding to the steels ČSN 42 2931, 42 2942 and the Soviet steel EYalT. The most favourable range of solution temperatures between 1100 and 1150 °C was determined. The rate of precipitation of carbide from austenite is highest in the temperature range 900 to 700 °C. The properties of the austenitic steels after the most favourable heat treatment are given and also practical conclusions.
Research Report SVUMT Z-60-966.
38 pages, 22 figures, 3 tables.

[Abstractor's note: Complete translation.]

Card 1/1

DRAPAL, Stanislav, inz., kandidat technickych ved

Effect of Mn on the stabilization and kinetics of pearlitic cementite decomposition. Hut listy 16 no.7:489-496 Jl '61.

1. Statni vyzkumny ustav materialu a technologie, Praha.

JENICEK, Ladislav, inz., dr.; DRAPAL, Stanislav, inz., doktor technickych ved

Internal stress of gray cast-iron castings. Stroj vyr 11 no.5:254-255 My '63.

1. Namestek reditele, Statni vyzkumny ustav materialu a technologie, Praha (for Drapal).

DRAPAL, Stanislav; HORALEK, Vratislav

Nucleation and growth of graphite in malleable cast iron. Slevarenstvi 11 no.8/9:366-373 Ag '63.

1. Statni vyzkumny ustav materialu a technologie, Praha; Statni vyzkumny ustav tepelne techniky, Praha.

DRAPAL, Stanislav, inz., DrSc.

"The material; steel" by W.Droge. Reviewed by Stanislav Drapal.
Stroj vyr 11 no.10:533 O '63.

DRAPAL, Stanislav, inz., DrSc.

Some remarks on a modern textbook of mechanical engineering.
Stroj vyr 11 no. 12: 637 '63.

VRBIK, Vl.; DRAPAL, S.; KRAUS, Vl.; LOBL, K.; VYKLICKY, M.; KABRHEL, A.; SUSTEK, A.; SLABA, J.; STETINA, K.; SCHREIBER, B.; PRUDKY, J.

Information on the reports of the State Research Institute of Material and Technology. Energetika Cz 13 no.1:53-54 Ja '63.

DRAPAL, Stanislav, inz., Dr.Sc.

"Malleable cast iron" by Elek Chapo, Jozsèf Geredy, Robert Lamm. Reviewed by Stanislav Drapal. Strojirenstvi 13 no.4:219 '63.

DRAPAL, S., inz., ScDr.

"Treatise on materials" by F.Pisek, L.Jenicek. Pt. 3. Reviewed by S.Drapal. Strojirenstvi 13 no.6:476 Je '63.

DRAPAL, S., inz., DrSc.

Heat treatment of castings from austenitic steels. Strojirenstvi 13 no.11:830-837 N '63.

1. Statni vyzkumny ustav materialu a technologie, Praha.

DRAPAL, Stanislav, inz. DrSc.

"Our materials" by K. Liebig. Reviewed by Stanislav Drapal.
Stroj vyr 12 no.3:235 '64.

DRAPAL, S.

Progress in the field of metallic materials. Energetika Cz 14 no.2: 99 F'64.

DRAPAL, Stanislav, inz. CSc.

Some problems of the present development of ferrous alloy castings. Slevarenstvi 13 no.3:85-91 Mr '65.

1. State Research Institute of Material and Technology, Prague.

L 18112-66 EWA(d)/EWP(t) JD
ACC NR: AP6010389 SOURCE CODE: CZ/0032/65/015/006/0447
0454

AUTHOR: Drapal, S. (Engineer; Doctor of sciences)

ORG: State Research Institute of Materials and Technology, Prague (Statni vyzkumny ustav materialu a technologie)

TITLE: Testing the mechanical properties of cast iron 14 18 B

SOURCE: Strojirenstvi, v. 15, no. 6, 1965, 447-454

TOPIC TAGS: cast iron, solid mechanical property, metal property

ABSTRACT: Cast iron will remain for some time one of the most important materials in machine building, with an extremely wide range of applications. The systematic efforts to improve further the properties of cast iron and to reduce the weight of the castings are accompanied by the perfection of the testing methods. The author describes the various methods now used to determine the mechanical properties of cast iron, and points out the difficulties in testing finished parts of intricate shape. This paper was presented by A. Vetiska, Doctor-engineer, Doctor, Candidate of sciences. Orig. art. has: 13 figures and 10 formulas. [JPRS]

SUB CODE: 11, 20 / SUBM DATE: none / ORIG REF: 005
Card 1/1 UDC: 669.131.6: 669.13.018.2
VC

UHLIR, Zdenek; DRAPAL, Zdenek

Use of ammonium nitrate in preparation of sodium triphosphate.
Sbor VSChT Pardubice 1/2 63-80 '62 [publ. '63].

1. Katedra anorganicke technologie, Vysoka skola chemicko-technologicka, Pardubice.

MALAWSKI, Marek J.; DRAPALA, Tadeusz

Special cases in the application of the Hammett equation. I. The ionization constants of the orto-substituted derivatives of benzoic acid. Rocz chemii 34 no.5:1371-1380 '60. (EEAI 10:9)

1. Department of Organic Chemistry, University, Warszawa, and Department of General Chemistry, College of Agriculture, Warszawa.

(Ionization) (Hammett equation) (Benzoic acid)

MALAWSKI, Marek, J.; DRAPALA, Tadeusz

Specific cases of applying the Hammett equation. Pt.2.
Rocz chemii 37 no.2:153-160 '63.

1. Department of Organic Chemistry, University, Warsaw, and Department of General Chemistry, Agricultural College, Warsaw.

WYCZALKOWSKA, Wanda; DRAPALA, Tadeusz

Comparative determination method of the ionization constant of single-base acids soluble in water by the potentiometric titration method. Rocz chemii 37 no.3:333-340 '63.

1. Katedra Chemii Ogolnej, Szkola Glowna Gospodarstwa Wiejskiego, Warszawa.

DRAPALA, Tadeusz, dr.

Application of the Hammett equation to studies on the influence of substituents on certain functional groups in a twophenyl system. Wiad chem 18 no.3: 180-182 Mr '64

1. Katedra Chemii Organicznej, Uniwersytet, Warszawa.

DRAPALA, Tadeusz, dr adiunkt

The Hammett equation. Wiad chem 18 no. 8:447-463 Ag '64.

1. Department of General Chemistry, Central College of Agriculture, Warsaw.

POLAND

DRAPALA, Tadeusz, Dr.

Adiunkt, Dept. of General Chemistry, Central Agricultural College (Adiunkt Katedry Chemii Ogolnej SGGW [Szkoła Główna Gospodarstwa Wiejskiego]), Warsaw

Wroclaw, Wiadomosci chemiczne, No 8, Aug 1965, pp 565-80

"Synthesis of biphenyl derivatives by the diazonium reaction."

USSR/Diseases of Farm Animals. Diseases Caused by Bacteria and Fungi. R-1

Abs Jour: Ref Zhur-Biol., No 18, 1958, 83528

Author : Drapalyuk, Ye. I.; Kulik, I.A.; Solovyeva, Ye. M.; Fesenkova, N.S.

Inst : No institute is given

Title : Comparative Diagnostic Values of UIEV [Ukrainian Institute of Experimental Veterinary Medicine] Tuberculoprotein and of Commercially Produced Tuberculin for Cattle.

Orig Pub: Veterinariya, 1958, No 1, 55-59

Abstract: 666 heads of cattle kept in tuberculosis isolators and in a conditionally healthy environoment were examined for tuberculosis with UIEV tuberculoprotein and commercially produced tuberculin used simultaneously. The first preparation proved more valuable since 1.3 times more animals reacted to it, and since reactions occurred faster, and were more pronounced.

Cardl/1

16

DRAPALYUK, Ye.I.

Results of the autumn biochemical analysis of feeds and the analysis of metabolism in animals. Veterinariia 37 no.1:62-64 Ja '60. (MIRA 16:6)

1. Direktor Dnepropetrovskoy oblastnoy veterinarno-bakteriologicheskoy laboratorii.
(Feeding and feeding stuffs--Analysis) (Metabolism)

DRAPALYUK, YE. I. Director of the Dnepropetrovsk Oblast' Veterinary Bacteriological Laboratory.

"An addition to the question of vibriosis in cattle," Veterinariya, Vol. 37, No. 12, p. 28, 1960.

DRAPALYUK, Ye.I.

Diagnosis of vibriosis in cattle. Veterinariia 37 no.12:28-29 D '60. (MIRA 15:4)

1. Direktor Dneporpetrovskoy oblastnoy veterinarno-bakteriologicheskoy laboratorii.
(Dnepropetrovsk Province--Cows--Diseases and pests)
(Abortion in animals) (Vibrio fetus)

DRAPATSKIY, M.Ya.; TRET'YAKOV, G.S.; KOSOVA, K.D., red.

[Seiner "Chuguev"] Seiner "Chuguev." Moskva, Izd-vo "Pishchevaia promyshlennost'," 1964. 23 (MIRA 17:6)

307/120-58-5-10/32

AUTHORS: Vyazemskiy, V. O., ~~Drapchinskiy, L. V.~~, Pisarevskiy, A. N., Trifonov, V. V. and Firsov, Ye. I.

TITLE: A Non-Overloading Amplifier with a Wide-Channel Discriminator (Neperegruzhayushchiysya usilitel' s shirokokanal'nym diskriminatorom)

PERIODICAL: Pribory i tekhnika eksperimenta, 1958, Nr 5, pp 40-44 (USSR)

ABSTRACT: The device described consists of the following principal parts: 1) a non-overloading linear amplifier comprising a pre-amplifier, a phase inverter, pulse-forming networks, an output amplifier and a power amplifier; 2) an integrating wide channel pulse discriminator consisting of a lower and upper gate, a charging diode, a resetting triode, an anti-coincidence circuit, the output univibrators of the integrating and differentiating channels followed by power amplifying stages; 3) supply sources. The non-loading amplifier is based on the circuit described by Fairstein (Ref.3) and its circuit diagram is shown in Fig.1. The pre-amplifier of

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A Non-Overloading Amplifier with a Wide-Channel Discriminator

this unit is based on a cathode coupled circuit, while the phase inverter consists of one tube with anode and cathode resistances. The pulses are formed after the inverter by means of RC networks or by a short circuited delay line (.5 μ sec duration). The final amplifier consists of 5 tubes; the first 3 form a "triple" and are provided with a negative feedback; the 4th tube operates as a cathode follower. The output signal of the amplifier is applied to an external pulse analyser and to the discriminator of the device. The discrimination level can be varied from 5 to 105 V in steps of 1 V; the voltage divider circuit is shown in Fig.2. The instrument is designed for the operation with a scintillation counter. The maximum gain of the amplifier is 2×10^6 and the effective noise amplitude at the output of the amplifier is less than .04 V. The pulse rise time is .15 μ s and the pulse duration is: a) 2, 5, 10 or 20 μ s if RC networks are used, and b) 1 μ s if a delay line is used. The overloading coefficient of the amplifier is over 100. The amplifier is asymmetrical in that it does not amplify negative pulses. The amplitude characteristic of the

A Non-Overloading Amplifier with a Wide-Channel Discriminator

amplifier is shown in Fig.3, from which it is seen that its output is linear from 2 to 120 V. The instrument is supplied with +300 V at 130 mA and with -250 V at 20 mA. The paper contains 3 figures and 3 English references.

ASSOCIATION: Radiyevyy institut AN SSSR (Radium Institute of the USSR Academy of Sciences)

SUBMITTED: November 18, 1957.

SOV/120-58-6-15/32

AUTHORS: Vyazemskiy, V. O., Drapchinskiy, L. V., Pisarevskiy, A. N., Trifonov, V. V. and Firsov, Ye. I.

TITLE: A Counting Instrument Employing Dekatrons (Pereschetnyy pribor s ispol'zovaniyem dekatronov)

PERIODICAL: Pribory i tekhnika eksperimenta, 1958, Nr 6, pp 78-81 (USSR)

ABSTRACT: Since a dekatron is a comparatively new device and since its parameters depend to a large extent on the trigger circuit employed to effect the transfer from one cathode to the next, a detailed investigation of the triggering methods was carried out. The authors tried a number of triggering circuits and found that the most successful one was that employing a double triode in which one of the anodes was provided with a delay capacitance; the circuit is shown in Fig.1z. The dekatron employed was of the type 10/SG1S and had 2 systems of guide electrodes. The actual counter (see the diagram of Fig.5) consisted of the following elements: 1) a binary counting decade based on vacuum tubes, 2) 4 counting decades based on dekatrons, 3) a timer, 4) a circuit for controlling the timer and the input gate circuit, 5) a gating circuit, 6) an intensity meter, 7) a quartz crystal calibrator, 8) a power supply source, and 9) a mechanical register.

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A Counting Instrument Employing Dekatrons

The operation of the equipment is as follows. An input pulse is applied to the gating circuit which is in the form of a univibrator; the circuit can be blocked by the bi-stable device which also controls the timer. The pulses from the anode of the gating univibrator are applied to the binary decade. The output from the decade is used to trigger the first dekatron, which in turn drives the following dekatrons. The counting can be stopped automatically after a pre-set time interval which is determined by the timer. The basic time intervals are 3, 6 and 15 sec; by employing 2 dekatrons it is also possible to obtain counting intervals of 60, 150, 300, 600 and 1500 sec. The average counting rate is recorded by the intensity meter which is capable of measuring the rates ranging from 200 to 5×10^4 pulses per minute. The instrument can be checked by employing the quartz

A Counting Instrument Employing Dekatrons

crystal oscillator which operates at 75 kc/s. The device has a resolving time of 12 μs. The authors express their gratitude to Yu. A. Nemilov for making this work possible and for his interest in it. The paper contains 8 figures and 4 references; 2 of the references are English and 2 are Soviet.

ASSOCIATION: Radiyevyy institut AN SSSR (Radium Institute of the Soviet Academy of Sciences)

SUBMITTED: November 18, 1957.

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21 (7)

AUTHORS: Dmitriyev, V. N., Drapchinskiy, L. V., Petrzhak, K. A., Romanov, Yu. F. SOV/20-127-3-14/71

TITLE: Energy Distribution of the Fragments From a Triple Fission of Uranium Nuclei Under the Action of Neutrons

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 3, pp 531 - 533 (USSR)

ABSTRACT: In the fission of the U^{235} nucleus by slow neutrons a far-reaching α-particle forms (Refs 1-4) besides two fragments with comparable mass. Allen and Dewan (Ref 2) used a double ionization chamber with target for investigating the energy distribution mentioned in the title. The chamber for recording the fission fragments had a grid, the other, used for recording the far-reaching α-particles, was separated from the target by a foil. The amplitude distribution of the fragment momenta of a triple fission was determined by means of a 30-channel amplitude analyzer. The energy distribution of the fragments originating from triple- and a double fission of U^{235} according to data from Allen and Dewan are shown by figure 1. In the present paper more exact investigations of the energy

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distribution of a triple fission were carried out. The influence exercised by the angular correlation was excluded by using a cylinder-symmetric grid which was fixed symmetrically to the plane of the central electrode. On the central electrode the uranium target was fastened onto a silver layer. The effective solid angle of the α-chamber amounted to 12.5% of 4π. The target was irradiated by neutrons of the reactor spectrum from the physical reactor of the AS USSR. The spectrum of the pulse amplitudes was recorded on a 30-channel pulse analyzer with electron brain. The simultaneously arriving pulses of α-particles and fragments were counted. The ionization in the fission chamber was taken into account. From the results obtained (Fig 1) the following was found: The spectra of fission into two and into three fragments are of analogous shape. With respect to fission into two fragments there is a shift of peaks toward the range of lower energies. Shifting of the peaks of the light fragments is greater than that of heavy fragments. Thus, there is such a thing as a slight approach of peaks. The ratio of peak heights is 1.1 compared to 1.48 in the double

fission of U^{235}. Likewise, the half width of the peak of heavy fragments is smaller in the case of triple fission. On the other side of the central electrode in the chamber, peaks are further shifted because of the slowing-down of the fragments in the film- and silver layer upon which the U^{235} was applied. Figure 2 shows the energy distribution for the double and triple fission of U^{233}. The fundamental parameters of this distribution are analogous to that of U^{235}. The sum of kinetic energy by which the two peaks (of light and heavy fragments) are shifted with respect to double fission is 17 Mev, which about corresponds to the 15 Mev required for the departure of α-particles. There are 2 figures and 5 references, 2 of which are Soviet.

Energy Distribution of the Fragments From a Triple Fission of Uranium Nuclei Under the Action of Neutrons SOV/20-127-3-14/71

ASSOCIATION: Radiyevyy institut im. V. G. Khlopina Akademii nauk SSSR (Radium Institute imeni V. G. Khlopin of the Academy of Sciences, USSR)

PRESENTED: April 8, 1959, by A. I. Ioffe, Academician

SUBMITTED: April 2, 1959

Card 4/4

DMITRIYEV, V.N.; DRAPCHINSKIY, L.V.; PETRZHAK, K.A.; ROMANOV, Yu.F.

Comparing the probabilities of triple fission of U^{233}, U^{235} and Pu^{239}. Zhur.eksp.i teor.fiz. 38 no.3:998-999 Mr '60. (MIRA 13:7)

1. Radiyevyy institut Akademii nauk SSSR.
(Nuclear fission) (Uranium--Isotopes)
(Plutonium--Isotopes)

83760

S/056/60/039/003/005/045
B004/B060

24.6600 (1138)

AUTHORS: Dmitriyev, V. N., Drapchinskiy, L. V., Petrzhak, K. A., Romanov, Yu. F.

TITLE: Energy Distribution of Fragments of Triple Fission of U^{235} 19

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 3 (9), pp. 556-562

TEXT: The authors wanted to obtain more accurate data regarding the energy distribution mentioned in the title by recording the energy of pair fragments. The alpha particles on either side of the target of the fissile substance were recorded in order to exclude the effect of angular correlation of fragments and alpha particles. Fig. 1 shows the arrangement of electrodes in the triple ionization chamber. The latter was filled with argon, whose 2 atm pressure prevented the alpha particles of the natural uranium radioactivity from penetrating into the chamber. Long-range alpha particles with energies from 10 to 24 Mev were recorded in the chamber. The target of the fissile substance was applied

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Energy Distribution of Fragments of Triple Fission of U^{235}

S/056/60/039/003/005/045
B004/B060

onto the common electrode of the fission chambers. The U^{235} was sprinkled onto one side of a gold-coated polyvinyl chloride acetate film in the electrostatic field. The U^{235} layer applied was 10 microgram/cm^2 thick. Fig. 2 shows the block diagram of the electronics the operation of which is described. The experiments were made on the physical reactor belonging to the AS USSR. 8000 triple fission events and 6000 double fission events were recorded. Fig. 3 shows the spectra relating to the fragments of triple and double fission taking account of the ionization caused by long-range alpha particles. The peak of light fragments is shifted in the direction of low energies by (9.0±0.5) Mev in the case of triple fission, while the peak of heavy fragments is shifted by (6.0±0.5) Mev. Fig. 4 shows the fragment yield in triple and double fission as a function of the total energy of fragments. The difference between the most probable energies amounts to (15.0±0.5) Mev. The half-width of distribution of triple fission fragments is 3 Mev smaller than in the case of double fission. The distribution approaches the form of a Gaussian. The fragment yield was determined as a function of the mass ratio on the strength of experimental data (Fig. 5). Fig. 6 shows the most probable

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Energy Distribution of Fragments of Triple Fission of U^{235}

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B004/B060

energies and dispersions of the kinetic total energy of fragments as a function of the mass ratio. The peaks observed in the range of mass ratio 1.3 are explained by the effect of the shell structure in accordance with A. N. Protopopov and I. A. Baranov (Ref. 10). The authors arrive at the conclusion that the probability of triple and double fission is not dependent on the mass ratio. The relation $E_{db} = E_{tr} + E_{\alpha}$ (1) holds, where E_{db}, E_{tr} denote the kinetic total energy of double and triple fission fragments and E_{α} the energy of alpha particles. The following relations are written down for the most probable event: $E_{db} = 166.4$ Mev, $E_{tr} + E_{\alpha} = 151.4 + 14.8 = 166.2$ Mev. The half-width values ΔE_{db}, ΔE_{tr}, ΔE_{α} obey equation $(\Delta E_{db})^2 = (\Delta E_{tr})^2 + (\Delta E_{\alpha})^2$, and are in agreement with experimental data. An explanation is supplied for the mechanism of triple fission. The authors mention papers by N. A. Perfilov, Yu. F. Romanov, and Z. T. Solov'yeva (Ref. 1), and V. T. Mostovoy et al. (Ref. 4). They thank M. A. Bak and S. S. Kovalenko for their advice and discussions, S. A.

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Energy Distribution of Fragments of Triple Fission of U^{235}

S/056/60/039/003/005/045
B004/B060

Gavrilov and A. P. Shilov for their cooperation in experiments made on the physical reactor of the AS USSR. There are 6 figures and 18 references: 9 Soviet, 6 US, 1 British, 1 Canadian, and 1 French.

ASSOCIATION: Radiyevyy institut Akademii nauk SSSR (Radium Institute of the Academy of Sciences, USSR)

SUBMITTED: April 14, 1960

Card 4/4

S/120/60/000/004/020/028
E032/E414

AUTHORS: Dmitriyev, V.N., Drapchinskiy, L.V. and Romanov, Yu.F.

TITLE: Teflon Insulators for Ionization Chambers and Counters

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No.4, p.135

TEXT: High voltage insulators are of considerable importance in ionization chamber practice. Glass or porcelain insulators which are available commercially are frequently inconvenient either because of their electrical or mechanical properties or their large dimensions. During the last three years, the present authors have used teflon insulators with dimensions not exceeding 40 x 10 mm^2. Such insulators are capable of withstanding voltages in excess of 10 kV. One of the simplest designs for such insulators is shown in Fig.1, where 1 is the insulator, 2 is a nut which keeps the insulator in position, 3 is a bush with a circular step, 4 is a soldered joint, 5 is the body of the chamber and 6 is a screw and nut arrangement. This design is vacuum-tight and can withstand pressures between a few mm Hg and 4 atm. There is 1 figure.

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S/120/60/000/004/020/028
E032/E414

Teflon Insulators for Ionization Chambers and Counters

ASSOCIATION: Radiyevyy institut AN SSSR
(Radium Institute AS USSR)

SUBMITTED: June 11, 1959

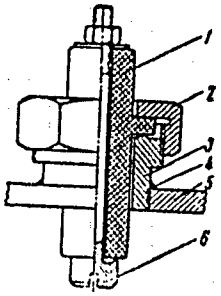

Рис. 1. Конструкция фторопластового изолятора. *1* — изолятор, *2* — гайка для крепления изолятора, *3* — втулка с кольцевым выступом, *4* — место пайки, *5* — корпус камеры, *6* — фигурный винт с гайкой

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Fig.1.

DMITRIYEV, V.N.; DRAPCHINSKIY, L.V.; PETRZHAK, K.A.; ROMANOV, Yu.F.

Energy distribution of fragments from triple fission of U^{235}.
Zhur. eksp. i teor. fiz. 39 no.3:556-562 S '60. (MIRA 13:10)

1. Radiyevyy institut Akademii nauk SSSR.
(Fission products) (Uranium--Isotopes)

28195
S/194/61/000/005/010/078
D201/D303

12 2200

AUTHORS: Gorin, A.V., Grosman, V.A., Drapchinskiy, L.V., Rayevskiy, B.N., Romanov, L.P., Storozhenko, E.P., Fedorov, Yu.P., Shavrin, G.M. and Shamov, V.P.

TITLE: A mobile radiometric emergency laboratory using semiconductor devices

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 5, 1961, 31-32, abstract 5 A235 (Dokl. nauchn. konferentsii in-ta radiats. gigiyeny po itogam raboty za 1959, g., L., 1960, 18-19)

TEXT: A description is given of a complete mobile laboratory, mounted on the automobile УАЗ -450 А (UAZ-450 A) and which is to be used for detecting radioactive isotope contamination of certain areas or of separate objects. The laboratory equipment consists of the following: 1) automatic recorder of the level of γ-background from 10 to 10^5 microcurie/hr (ИРГ-ПГС-5)(IRG-PGS-5)); 2) 2

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A mobile radiometric emergency... S/194/61/000/005/010/078
D201/D303

calculating machines (ИРГ-ПП-100)(IRG-PP-100)); 3) supplies 200-2000 V; 4) head screening (thickness 40 mm) for counters СТС-5 (STS-5) in cassettes or for the end-counter; 5) rate counter ИРГ-ИП-1 (IRG-IP-1) with counting rate up to 10^6 pulses/min; 6) beta-gamma portable scintillating radiometer with ФЭУ-25 (FEU-25) ИРГ-ПР-2 (IRG-PR-2). Power for the whole installation is supplied by the automobile battery. Power comsumption ~ 15 watt. The laboratory personnel consists of three operators and driver. [Abstracter's note: Complete translation]

Card 2/2

S/120/62/000/001/020/061
E140/E463

21.6000

AUTHORS: Dmitriyev, V.N., Drapchinskiy, L.V., Petrzhak, K.A., Romanov, Yu.F.

TITLE: Measurement of conjugate fission fragment energies

PERIODICAL: Pribory i tekhnika eksperimenta, no.1, 1962, 94-96

TEXT: In studying energy evolution in the fission of heavy nuclei, the energies of the fission fragments must be measured. The authors use a method of photographic recording from the screen of a CRT, where the two axes correspond to the energies of two conjugate fission fragments. Up to 80 events are photographed on one frame, from which they are transferred to millimetric paper manually (using a projection technique). Ten thousand points can be plotted in 8 man hours. A control experiment was run to test the symmetry of the two channels, which was found satisfactory to within experimental error. There are 2 figures.

ASSOCIATION: Radiyevyy institut AN SSSR
(Radium Institute AS USSR)

SUBMITTED: June 7, 1961

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L 11137-63 EPF(n)-2/EWT(m)/BDS--AFFTC/ASD/SSD--Pab-4/Pz-6 RM
ACCESSION NR: AP3002264 S/0089/63/014/006/0574/0575

AUTHOR: Dmitriyev, V. N.; Drapchinskiy, L. V.; Petrzhak, K. A.; Romanov, Yu. F.

TITLE: Comparative characteristics of triple fission of uranium and plutonium

SOURCE: Atomnaya energiya, v. 14, no. 6, 1963, 574-575

TOPIC TAGS: triple fission, uranium, plutonium

ABSTRACT: The purpose of the work was obtaining sufficient data concerning the energy distribution of fission fragments of U sup 238, U sup 235 and Pu sup 239 on slow neutrons. Twenty thousand events of triple fission of the first, 15,000 of the second, and 12,000 of the third nucleus were recorded. The apparatus was described in Zhurn. eksper. i teor. fiz. The [illegible] plotted with E sub 1, E sub 2 as abscissa & sub 3 as ordinate, the value of the relative frequency of fission [illegible] Dalitz diagram". The diagrams are similar for all three nuclei. Figure 1 (see Enclosure) shows the results for U sup 238. The solid lines are for triple fission, and the broken lines are for double fission. [illegible] the result is symmetrical. The latter indicate the same nature of fission in all three nuclei. Orig. art. has: 2 figures and 1 table.

Card 1/4

BE

ACCESSION NR: AP4015564 S/0089/64/016/002/0144/0145

AUTHOR: Drapchinskiy, L. V.; Kovalenko, S. S.: Petrzhak, K. A.; Tyutyugin, I. I.

TITLE: Probability ratio of the triple splitting of U sup 235 and U sup 238 by a neutron of various energies

SOURCE: Atomnaya energiya, v. 16, no. 2, 1964, 144-145

TOPIC TAGS: triple splitting, probability, U sup 235, U sup 238, thermal neutron, fast neutron, heavy water

ABSTRACT: The authors have investigated the probability of triple splitting of U^{235} and U^{238} by thermal neutrons and by neutrons of 2.5 and 14 Mev energy. The thermal neutrons were obtained by slowing down neutrons of 2.5 Mev in paraffin, and the fast neutrons were obtained from the reactions $D(d,n)He^3$ for 2.5 and $T(d,n)He^4$ for 14 Mev respectively. The results show that the probability of a triple splitting does not change (within experimental errors of about 10%) with neutron energy. This is at variance with the results of N. A.

Card 1/2

ACCESSION NR: AP4015564

Perfilov et al. (Atomnaya energiya, v. 14 (1963), 575). Orig. art. has: 2 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 24Jun63 DATE ACQ: 12Mar64 ENCL: 00

SUB CODE: PH NO REF SOV: 002 OTHER: 002

2/2

Card

ACC NR: AP7006225 SOURCE CODE: UR/0367/67/005/001/0042/0048

AUTHOR: Adamov, V. M.; Drapchinskiy, L. V.; Kovalenko, S. S.; Petrzhak, K. A.; Tyutyugin, I. I.

ORG: none

TITLE: Neutrons and gamma-quanta at spontaneous ternary fission of Cm^{244}

SOURCE: Yadernaya fizika, v. 5, no. 1, 1967, 42-48

TOPIC TAGS: nuclear fission, fission product, prompt neutron, gamma quantum, ALPHA PARTICLE, CURIUM, ISOTOPE

ABSTRACT: An investigation was made of the dependence of the average number of prompt neutrons ($\bar{\nu}_{tr}$) and gamma-quanta ($\bar{n}_{tr}$) on the energy of alpha-particles and the interrelationship of energy distribution of alpha-particles and gamma-quanta at a spontaneous ternary fission of Cm^{244}. The fission fragments were recorded by a small ionization chamber; the alpha particles with a CsJ(Tl) crystal; the neutrons with a stilbene crystal; and the gamma quanta with NaJ(Tl) crystal. An electronic device recorded simultaneously the number of binary coincidences of neutrons (gamma-quanta) and fragments ($N_{n(\gamma)\text{-frag}}$); the number of binary coincidences of alpha-particles and fragments ($N_{\alpha\text{-frag}}$); and the number of ternary coincidences of alpha-particles, neutrons (gamma-quanta), and fragment ($N_{\alpha\text{-}n(\gamma)\text{-frag}}$). Preliminary measurements of the dependence of $\bar{\nu}_{tr}$ and $\bar{n}_{tr}$ on the energy of alpha particles were carried out with the same target. The determined ratios for average numbers of prompt neutrons and gamma-quanta for ternary and binary spontaneous fission of Cm^{244} were

Card 1/2 UDC: none

ACC NR: AP7006225

$\bar{\nu}_{tr}/\bar{\nu} = 0.58 \pm 0.07$ and $\bar{\eta}_{tr}/\bar{\eta} = 0.88 \pm 0.09$, respectively. An investigation of the dependence of $\bar{\nu}_{tr}$ and $\bar{\eta}_{tr}$ on the alpha-particle energy showed that when the energy of the alpha-particle changes from 15 to 25 Mev, $\bar{\nu}_{tr}$ decreases from 1.95 to 1.16, while $\bar{\eta}_{tr}$ remains constant. This indicates that the ternary fission mechanism is two-staged. Correlated energy distributions of ternary fission of gamma-quanta and alpha-particles were obtained. An analysis showed that the gamma-quanta energy distributions do not depend significantly on the alpha-particle energy. The binary and ternary gamma-quanta spectra were also identical. It follows that no significant gamma-radiation directly connected with the alpha-particle emission is emitted in the ternary fission. The authors thank A. S. Krivokhatskiy, B. M. Aleksandrov, and N. A. Malyshev for the Cm^{244} targets. Orig. art. has: 6 figures. [WA-95]

SUB CODE: 20/ SUBM DATE: none/ [JA]

Card 2/2

RAKHMANCHIK, G.I.; KORSHUN, I.V.; DRAPCHUK, M.K.

Stomach and intestinal diseases of children. Zdrav. Bel. 5 no.5: 11-13 My '59. (MIRA 12:8)

1. Iz Instituta epidemiologii, mikrobiologii i gigiyeny, Instituta okhrany materinstva i detstva i 3-y detskoy bol'nitsy g. Minska.
(STOMACH--DISEASES) (INTESTINES--DISEASES)
(ESCHERICIA COLI)

CZECHOSLOVAKIA

TOMANEK, A; DRAPELA, J.

Research Institute of Tuberculosis (Vyzkumn y ustav tuberkulozy), Prague (for both)

Prague, Rozhledy v tuberkulose, No 8, 1963, pp 553-557

"Comparison of the Effect of Streptomycin-Sulphate and Streptomycin-Panthotenate on the Eight Cranial Nerve."

DRAPELA, Jindrich, inz.

Remark on the article "Faculty of Wood Industry, Wood Engineers and the Practice." Drevo 20 no.1:31 Ja '65.

1. Association of Furniture Industry Enterprises, Brno.

DRAPELLA, Aleksander and collective (Krakow)

Protection wall from corrugated asbestos tile. Przegl. budowl. i bud. mieszk. 33 no.5:295-298 My'61

DRAPELLA, Wladyslaw A.

The Swedish battleship "Wasa" and its epoch; after 333 years.
Przegl morski 16 no.4:39-50 Ap '62.

DRAPEZO, P.A.; SHAPIRO, G.S., red.

[Economic efficiency of automatic rotary lines] Ekonomicheskaia effektivnost' avtomaticheskikh rotornykh linii. Minsk, In-t nauchno-tekhn. informatsii i propagandy, 1962. 29 p. (MIRA 18:3)

VORONTSOV, N.M.; TRISHEVSKIY, I.S.; DRAPIKO, P.Ye.

Investigating the mechanical properties of cold-bent shapes made of 1Kh18N9T, 08Kh13 and St.3 steels. Sbor.trud. UNIIM no.11:197-207 '65. (MIRA 18:11)

TRISHEVSKIY, I.S.; STUKALOV, V.P.; SKOKOV, F.I.; DRAPIKO, P.Ye.

Developing and studying the technology of producing rolled shapes with elements bent to 180°. Sbor.trud. UNIIM no.11:216-231 '65. (MIRA 18:11)

L 39676-66 EWT(m)/EWA(d)/EWP(t)/ETI/EWP(k) IJP(c) JD/HW/GD-2

ACC NR: AR6009955 SOURCE CODE: UR/0137/65/000/012/D008/D008

AUTHORS: Vorontsov, N. M.; Trishevskiy, I. S.; Drapiko, P. Ye.

TITLE: Investigation of the mechanical properties of cold-worked profiles, manufactured from steels of type 1Kh18N9T, 08Kh13, and St.3

SOURCE: Ref. zh. Metallurgiya, Abs. 12D65

REF SOURCE: Sb. tr. Ukr. n.-i. in-t metallov, vyp. 11, 1965, 197-207

TOPIC TAGS: solid mechanical property, steel, alloy steel, steel forging/ 1Kh18N9T steel, 08Kh13 steel, St.3 steel

ABSTRACT: The mechanical properties of profiled strips of 1Kh18N9T, 08Kh13, and St 3 steels were investigated. For profiled strips of 1Kh18N9T steel, the tensile strength increased from 67 to 89 kg/mm^2, the yield stress increased from 34 to 55 kg/mm^2, the surface hardness increased from 80 to 102 R_B, and the relative elongation decreased from 38 to 25%. For strips of 08Kh13 the tensile strength increased from 50 to 67 kg/mm^2, the yield stress increased from 37 to 63 kg/mm^2, the surface hardness increased from 82 to 97 R_B, and the relative elongation decreased from 20 to 6%. Shapes fabricated from 1Kh18N9T have the maximum strength characteristics and the greatest relative elongation. The method developed for determining the cited values of the characteristics of the mechanical properties of shapes by comparing the

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specimens with standard specimens permits these values to be determined for a relatively small number of specimens with an error of 2--6%. 7 figures, 1 table.
L. Kochenova (Translation of abstract)

SUB CODE: 20, 11

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Translation from : Referativnyy zhurnal.Matematika,1959,Nr 1,p 78 (USSR)

AUTHOR: Drapkin, A.B.

TITLE: Asymptotic Behavior of the Eigen Values and -Functions of the Problems of Dirichlet Type for a Class of Elliptic Systems

PERIODICAL: Nauk zap. L'vivs'k. un-t,1957,44, 134-147

ABSTRACT: In the finite domain D bounded by the Lyapunov surface S there is considered the problem

(1) $A\left(x, \frac{\partial}{\partial x}\right) u_k(x) = -\lambda_k u_k(x),\ x \in D;\ u_k(x) = 0, x \in S$

where

(2) $A\left(x, \frac{\partial}{\partial x}\right) = \sum_{ij} A_{ij}(x) \frac{\partial^2}{\partial x_i \partial x_j} + \sum_i A_i \frac{\partial}{\partial x_i} + A_o,\ A_{ij} = A_{ji}$

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Asymptotic Behavior of the Eigen Values and -Functions of the Problems of Dirichlet Type for a Class of Elliptic Systems

is an operator of second order with sufficiently smooth coefficients. Under the assumption that the operator (2) is elliptic and is the variation operator of a certain positive definite functional, the author obtains, by means of a method of Carleman and by use of the fundamental solution matrix, the asymptotic formulas :

$$\sum_{k=1}^{n} u_k'(x)u_k(x) \sim \frac{1}{12\pi^4} \int_{-\infty}^{\infty} \operatorname{spur}\left\{\left[A_2(x,\alpha)\right]\left[A_2(x,\alpha) + E\right]\right\}^{-1} d\alpha \cdot \lambda_n^{3/2} , \tag{3}$$

$$n \sim \frac{1}{12\pi^4} \int_D \left\{ \int_{-\infty}^{\infty} \operatorname{spur}\left\{\left[A_2(x,\alpha)\right]\left[A_2(x,\alpha) + E\right]\right\}^{-1} d\alpha \right\} dx \cdot \lambda_n^{3/2}$$

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